

1000 WAYS TO SECURE A PILOT LADDER

and only one way is correct.....

By: Arie Palmers (reg. Pilot)

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2 metres of ladder with at least 4 non compliances

1. Introduction

Dear reader.

My name is Arie Palmers and I have been working as a pilot in the Scheldemonden area since 2009. After I was involved in 2 incidents with minor injuries in one week in the spring of 2018, I started wondering whatever might have caused these 2 incidents and I started developing an interest in pilot ladders and the way they are secured.

From that moment on I have been keeping a tally of the non compliant boarding arrangements I see in front of me on a daily base, and off course I participate in the annual safety campaign, conducted by IMPA each october. The outcome of the campaign is that about 18-20% of the boarding arrangements are non compliant in accordance with:

- SOLAS Regulation V/23
- IMO Resolution A.1045(27)
- NEN ISO 799-1(2019)

In my own tally the outcome is even more staggering: 47% of the pilot boarding arrangements I have to encounter are non compliant....What does this difference mean??? That will be work enough ahead for another article.....On a daily basis we see numerous of different ways a pilot ladder is secured, the vast majority of them is non compliant and therefore dangerous for the user. Insurance companies might even deny liability after an incident because you could have known or should have known the arrangement was dangerous. If you still use it, it's on your own behalf....

In the next few chapter's I will discuss the arrangements we see a lot, and explain why they are non compliant. As the title suggests already: 1000 ways to hang a ladder, only on of them is right. Names of the vessels involved, will not be displayed in the article, just out of politeness.. The facebook page "dangerousladders" often displays names and destinations of the vessels involved, mainly to warn our colleague in the port of destination that a present is underway.

I wish you all good readings and please feel free to comment and share. Please keep coming back home vertically and not horizontally!!

Also check facebook: dangerousladders



Broken combination with 3 more non compliances

2. Deck Tongue.



Notorious offender...

A photo explains more than a 1000 words... Here we see an example of a so called deck tongue, installed on one of our regular visitors. Seems like a great and simple solution to install and adjust a pilot ladder, ingenious invention! Unfortunately this system is non compliant and therefore downright dangerous for anyone who might have to use it (pilots, agents, surveyors, crew changes etc etc).



Here we see the decktongue in use holding the ladder, or to put it better, holding one step. Besides all this, the ladder seems rather old and worn. Let's have a look at the regulations to explain why this setup is dangerous.

ISO799-1(2019) states that: each siderope shall have a breaking strenght of at least 24kN and the diameter should be 20mm (63 mm circumference) (4.2.1)

ISO799-1(2019) states that each step shall have a strenght of at least 8,8 kN (table A.1 production test).

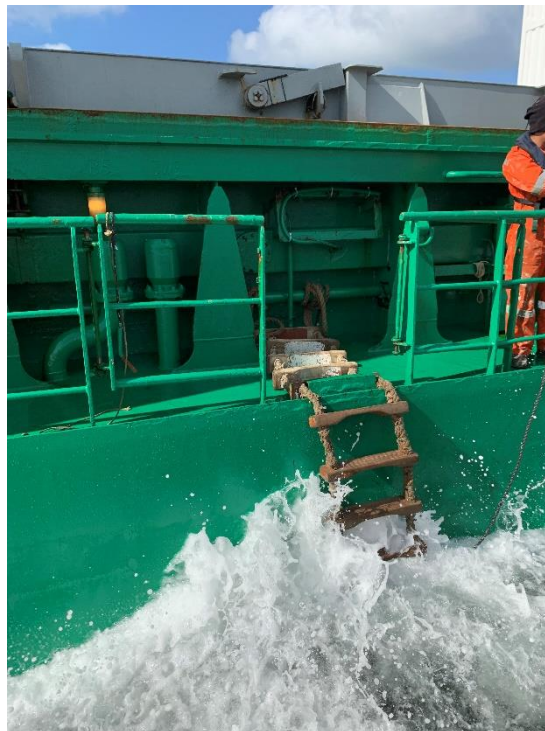
IMO1045(27) 2.1.1 the securing points etc shall be at least as strong as the sideropes.

After reading this, we find out that each siderope can handle 2400 kilos (4800 together) and that each step can handle a weight of 880 kilos. The strenght of the deck tongue? Don't have the slightest idea..... is it tested and certified?

So we buy a tested ladder that can handle about 5 tonnes on the sideropes, and then we put a step that can carry 800 kilos behind a steel plate.... One touch of the pilot launch and it's gone, rather inconvenient for the poor guy standing on the ladder at that moment...

Swell, swinging of the ship or the launch lifting the ladder can also have the dangerous result that the ladder comes loose out of this deck tongue and goes overboard....

Besides that, SECURING a ladder is something totally different dan putting it behind a piece of welded steel. We all climb ladders without being secured in any way.... Solas and imo provide the minumum safety rules concerning the ladders, less is absolutely not more in this case..



Notorious offender, and it's not even a pilotladder...

As we say: non compliant as hell....

3. Bulwark setup



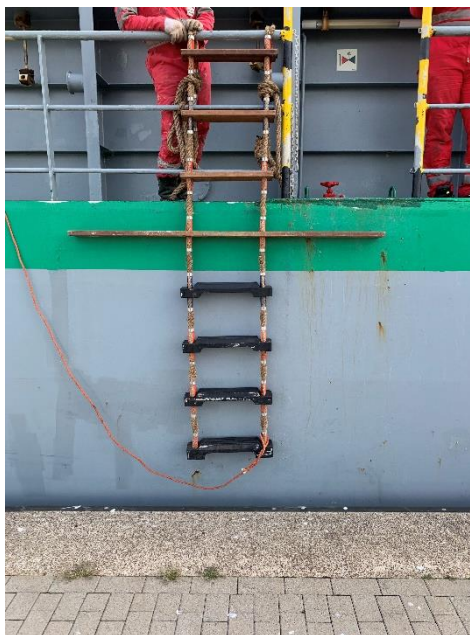
Notorious offender with bulwark setup

It's not even a pilot ladder (at least 6 non compliances)

Another easy way to prepare a ladder: throw it over the railing, tie the sideropes together with a piece of rope you found on deck and you have the ladder ready in a jiffy!!

The ladder is not a pilot ladder, something to get into in another article..

We have already seen that the ladder has to be secured to strongpoints on deck, well...a railing is not a deck, seems easy peasy and yet it goes wrong time after time, why? Maybe it looks easier to rig it this way.



This setup makes you have to stumble sideways to reach the entrance

We have already seen that the ropes of the ladder can handle almost 5 tonnes combined, just a question for the reader: are you sure the railing can handle 5 tonnes? We have all seen beaten up and damaged railings in our career, who of you hasn't stepped on a railing piece of steel, and it gave way? We'll never be able to find out who spotwelded the railing in a far away shipyard many years ago

For sure a railing can't handle 5 tonnes.

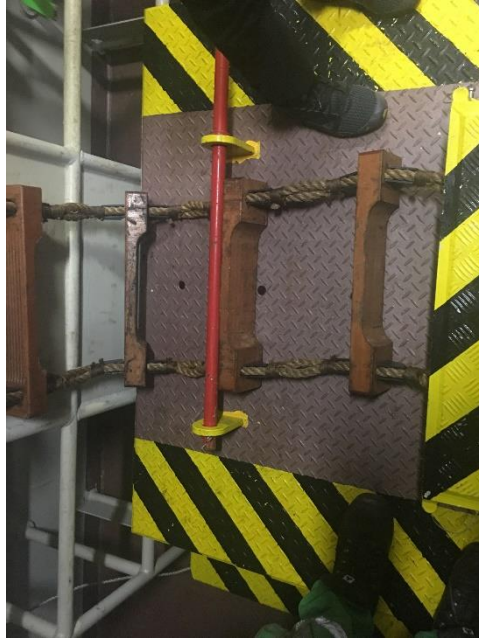
Conclusion: 'securing' a ladder on a piece of railing is non compliant and therefore dangerous..if it's non compliant, it's dangerous...don't use it!

Have them secure the ladder to strongpoints on deck and don't forget to report them.



Sideway shuffle again..how strong is the railing?

4. Platform placed over the securing area of the ladder



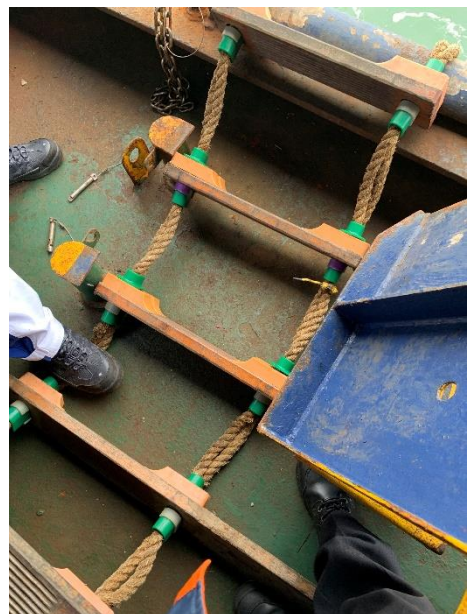
Always a surprise when you lift the lid

Having a platform built over the securing area of the pilot ladder is absolutely not illegal, it can even improve the access: no debris or other tripping hazards.

BUT, 99 out of 100 times, when you lift the lid, there's a surprise underneath: a steel bar (which we'll discuss later) a deck tongue or just nothing to hold the arrangement in place.



Looks like a safe access



so the 3cm piece of steel is the only thing between life or death..

Basically, whenever you encounter a platform over the ladder, just ask them to lift it because you want to check the way of securing. As we have seen in the last photo, there was no securing at all!

A nice and swift way for the crew to install, and it can be a swift way for you to get down to the deck level of the pilot boat.

Secured to strongpoints on deck? No..

Secured to strongpoints? No..

Secured? No..

Again it's non compliant and therefore dangerous, don't use it. Have them secure it to strongpoints on deck and don't forget to report the vessel.

Instead of getting down the ladder you'll be walking the plank...



5. Spreader

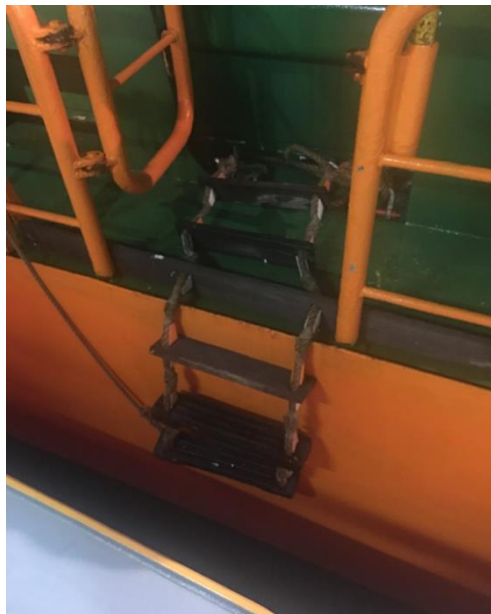


spreader used for secured the ladder behind a very thin piece of railing

A spreader is a great invention to prevent a pilot ladder from twisting. Without a spreader you might look at the horizon instead of the ship's side all of a sudden. How to get back in a good position when something like that happens? Therefore every ladder with more than 5 steps must have a spreader (IMO A.1045(27) rule 2.1.4).

That is what a spreader is made for and not for keeping a ladder secured to strongpoints on deck.

As we know from an earlier statement in the article, steps can handle 800 kilos and sideropes 2400 kilos each. That's the main reason you can and will not secure it this way. On touch of the pilot boat and the ladder will be damaged beyond repair, as will be the poor soul standing on the ladder...



Again a spreader as a securing method

6. Human force

I feel very lucky i've never ran into this method, but at least 2 of my colleagues have. Let's just assume you have to board a vessel, the ladder has to be lowered a bit, wich goes rather rapidly and before you know it you look up, you see a smiling face, thumbs up " ready mr. pilot!!"

The you start climbing, what might be a real Jacob's ladder, you reach the top and 2 quite overweight guys stand on the sideropes on deck... horrible

They must have read the instructions wrong. The instructions clearly state: the ladder has to be secured to strongpoints on deck and not to strong men on deck. After this case the vessel was reported, captain was angry, not with the guys on deck but with the pilot for reporting his vessel..



7. Combinations



non compliant combination

Solas 23 clearly states (3.3.1): a pilot ladder requiring a climb of not less than 1,5 m and not more than 9 m above the surface of the water etc.etc.

Why 1,5 m? Well wait and see where you want to grab with a pilot ladder on a low freeboard of the vessel you have to climb onto... 3 steps over the side and nothing to hold on to.

Why 9 m? To make something clear: this has nothing to do with the length of the ladder, but only with the distance from the watersurface to the deck entry point >> more than 9m? Combination..

If you drop down from distances over 9 m there is a significant risk of severe injuries or even death when you fall down. It's all about the acceleration..(FUBAR)

We have seen that I wrote in the above picture the set up was non compliant, but why? Looks alright or not?

To start with, the ladder is tied to the gangway. Both ladder and gangway have to be secured to the hull independently, and not together... You see the ladder is not attached to the hull this way.

Ok. Suppose they have sorted this issue and you start climbing. You reach the platform and there's nothing to hold on to. On both sides of the platform there have to be hand hold stanchions (and horizontal ropes) so you can safely transfer from the ladder to the platform.

IMO A.1045(27)

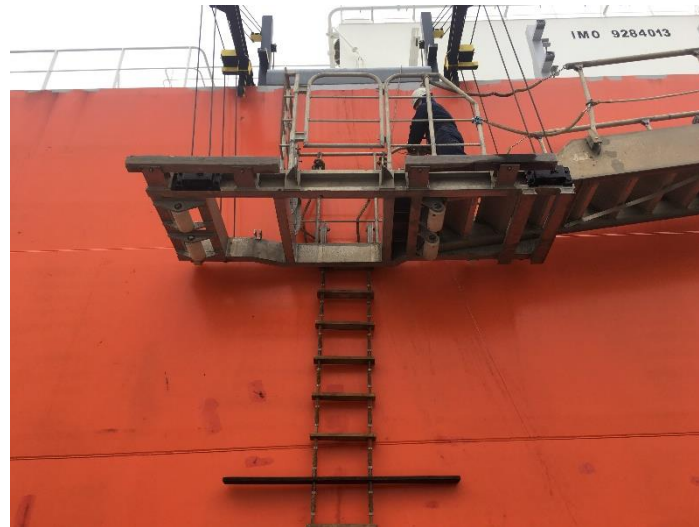
3.2 angle of the gangway under 45 degrees

3.3 lower platform horizontal and secured to the ship's side. At least 5 m above the water

3.5 stanchions and rigid handrails

3.6 ladder adjacent to the platform, maximum distance 0,2m, secured to the ship's side

8. Embarkation platforms



Another name often used for this platform is “trapdoor system”. Another wonderful invention to rig a ladder, at least a number of people must have thought it would be a great system. The problem is however, the more risk on non-compliances, the more there will be.. (Keep It Stupid Simple).

Ok, let's go to the “rulebook” to see what's wrong with this setup...

IMO A.1045(27) 3.7 is the most important one in this case. It tells us the ladder has to “extend above the lower platform to the height of the handrail and remain in alignment with and against the ship's side..

We have already seen that the ladder has to be secured to strongpoints on deck, not the case here.

Also we saw that the ladder and platform have to be secured to the ship's hull, not the case here.

More often than not the platform has to be adjusted in height to make a safe approach of the pilot boat possible. This always happens in a jiffy which means, the winch is not mechanically secured and the system is not secured to the ship's hull..all that is keeping you alive are the steel wires..

The ladder is attached under the platform, and we know now this is not correct. Whenever you reach the top of the ladder, you have to lean back, grab some pieces of steel and drag yourself through the gap (750x750mm) in the platform.. during rain this system works as a nice shower as well: water collected on the platform and gangway will find its way down through the gap.

Here are a lot of reasons why someone climbing this setup can fall back down into the water or onto the pilot boat. And yes it happens every year again, with severe injuries or worse. It's inconvenient, slippery and dangerous, reject and abort.

So the ladder has to run through the platform, must be secured to the already mentioned strongpoints, and had to rest firmly against the ship's hull as well, all not the case here.

I would love to show a compliant embarkation platform system, but in over 10 years of pilotage I have come across the most sickening fantasies in construction but never ever a compliant one, sorry dear reader..

9. Pilot ladder winch reel

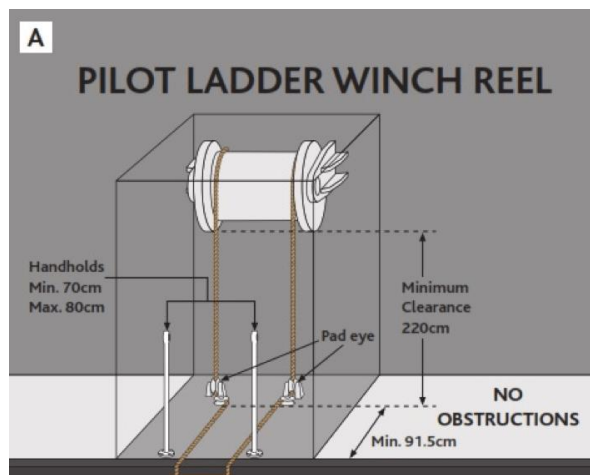


Non compliant (by design)pilot ladder winch

First the “IMO-rulebook” again...

- 7.1.1 Position of the winch must provide unobstructed access to the ship. Here we see it's not the case: if you keep climbing you'll end up on top of the winch..
- 7.1.2 Point of access may be a ship's side opening, accommodation ladder or a single section of pilot ladder. In this set up you have to step sideways to the deck and in another section of this article we have already seen this is not allowed. What if, due to the freeboard a spreader is obstructing your unobstructed access??
- 7.1.3 The access position and area should be clear of obstructions. Therefore the winch has to be placed basically out of your way

And the most important rule I want to stress on in this part is rule 7.4.2: the pilot ladder should be secured to a strongpoint independent of the pilot ladder winch reel AND 7.4.3: the ladder should be secured at deck level inside the ship's opening or, when located on the ship's upper deck, at a distance of not less than 915mm horizontally from the ship's side inwards.



Correct section of the pilot ladder poster

Here we see a correct part of the well known pilot ladder poster, it makes the rule clear. Suppose the ladder is secured to the deck at the opening? This is a risk for someone climbing: when he reaches in he can grab hold of a part of the ladder on the other side of the securing and fall down.. it has happened to one of my colleagues overhere, he wasn't able to work for over 6 months and gained a few kilos in weight only due to the nuts and bolts keeping his foot together. You'll understand the 915 mm makes sense. Haven't met anyone yet with arms longer than 915mm.

Also the system is secured in more ways: the ladder is secured to strongpoints, the winch is on the brake and (7.5.6) a mechanical device or locking pin should also be utilized to lock powered winch reels.

Again we see: the more difficult, the more non compliances.



Non compliant (by design) pilot ladder winch reel, spreader obstructing entrance after the sideways dive

In this final picture in this section we can clearly see the spreader is obstructing your safe access to the ship, and again you have to stumble sideways.

Conclusion in this section: RTFM, or look at the poster



Non compliant: not secured on deck and deck level

10. Shackles (why and why not)



Check the condition of the sideropes

On the photo we see that the shackles have been used often to keep the ladder in place. The photo shows really well what effect the steel shackles have on the manilla ropes: twisted and beaten up...just wonder if this ladder will pass the 30-month compulsory strenght test (ISO799-1/2019 10.4)

Shackles are an easy way for the crew to keep a ladder in place, but is it actually securing the sideropes??? No it's not..when weight is put on the ladder, the ladder will move freely under the shackles until the next chocks and step has reached the shackles.

Basically the ladder will be held in place solely by step and chocks. Ley's think back a moment, we have seen that each siderope can handle 2400 kilos and that a step can handle 800 kilos.

If or when the pilot lauch hits the ladder, it will be ripped to pieces..800 kilos instead of 4800 kilos.

So we see that the shackles ruin the sideropes and that the force is put tot he steps and not the sideropes. Why still use this setup would be an genuine question. The answer is simple: IMO allows it:

IMO A.1045(27): 2.1.1 the securing strong points,**shackles**, and securing ropes should be at least as strong as the sideropes specified etc etc.

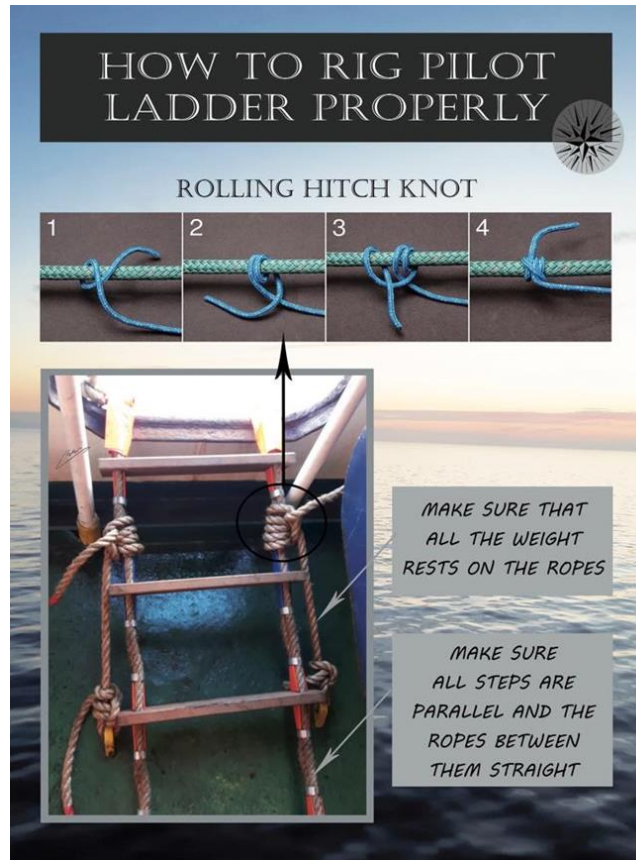
This sentence is the only permission in the IMO regulations for using shackles over ropes, with the result we have seen on the photo. Different countries (New Zealand, UK etc) have already declared shackles non compliant... have you rigged a ladder with shackles? Ok no pilot for you!



A lot of stress on the chocks and steps

11. Correct way of rigging a ladder

After all the don'ts finally a do.... What is the best practice to secure the ladder to strongpoints on deck?



This is it...nothing to it,simple and safe!

We saw in the previous section that the securing ropes must at least have the same strength as the sideropes and that makes sense doesn't it? 2400 kilos secured by a rope of 2400 kilos strength.

The rolling hitch knot.

The better ladder manufacturers supply securing ropes with every ladder they provide. Use these ropes. Don't use some random piece of rope you have found in the bosun's shop or strops or what else.

It's an easy to do knot, every able seaman knows how to tie this knot

No stress on the steps

No stress on the chocks

Sideropes will not be destroyed by the shackles

The ladder will last longer and therefore save money to the shipping company.....

12. **Epilogue**

I hope you have enjoyed reading this article and maybe you've seen some practices used on your own ship. Don't hesitate to step forward and change it to a compliant system.

You want to be safe, so does the pilot boarding your vessel. You can be sure: I don't want to die climbing a ladder as unfortunately happens again and again. People die and get hurt.

I have promised my loved ones to come back home vertically and not horizontally.

But..be aware, there are off course more non compliant ways to secure a pilot ladder..brackets, steel wires etc etc etc.

For now stay safe and godspeed!!!!

Arie Palmers

Registered pilot